What is claimed is:

1. A fuel cell power supply unit comprising an electrochemical fuel cell and a capacitor, which is substantially directly connected with the fuel cell, wherein the fuel cell power supply unit obtains an excess supply amount of a reacting gas supplied to the fuel cell obtained by determining a voltage of the fuel cell after the variation of electrical load based on a synthetic output characteristics of the fuel cell and the capacitor, originated from a equilibrium point on a current-voltage characteristics of the fuel cell at a predetermined output state and a predetermined width of a variation of electrical load, obtains a current corresponding to said voltage, obtains a reacting gas supply amount corresponding to said current, and supplies the reacting gas in an amount which includes an excess supply amount with the equilibrium reacting gas supply amount before the variation of electrical load.

2. A fuel cell power supply unit according to claim 1, wherein the reacting gas amount supplied to the fuel cell in said output state is determined based on the current-voltage characteristics of said fuel cell, the current-voltage characteristics of the capacitor, and the equilibrium reacting gas supply amount characteristics corresponding to the current-voltage characteristics of the fuel cell.

3. A fuel cell power supply unit according to claim 1, wherein the current-voltage characteristics of said fuel cell depend on an internal resistance of the fuel cell or an average internal resistance of the fuel cell within a predetermined output current range.

4. A fuel cell power supply unit according to claim 1, wherein the current-voltage characteristics of said electric double layer capacitor depends on the internal resistance of said electric double layer capacitor.

5. A fuel cell power supply unit according to claim 1, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

6. A fuel cell power supply unit according to claim 2, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

7. A fuel cell power supply unit according to claim 3, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

8. A fuel cell power supply unit according to claim 4, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

9. A fuel cell power supply unit according to claim 5, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

10. A fuel cell power supply unit according to claim 6, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

11. A fuel cell power supply unit according to claim 7, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

12. A fuel cell power supply unit according to claim 8, wherein the response time of said

reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

13. A fuel cell power supply unit according to claim 5, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

14. A fuel cell power supply unit according to claim 6, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

15. A fuel cell power supply unit according to claim 7, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

16. A fuel cell power supply unit according to claim 8, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

17. A fuel cell power supply unit according to one of claims 1 to 16, in which the reacting gas supply amount to said fuel cell is obtained based on a target generation command value after calculating a target output command value for a driving motor and a target generation command value of said fuel cell based on the input signals indicating the driving state of a vehicle obtained at predetermined intervals, wherein the width of the variation of electrical load obtained from the difference between two successively obtained target generation command values is controlled so as to be within a predetermined range of the difference.

18. A fuel cell power supply unit comprising an electrochemical fuel cell and an electric

double layer capacitor, both of which are substantially directly connected, and a current limiting device provided between the fuel cell and the capacitor, wherein the fuel cell power supply unit obtains an excess supply amount of a reacting gas supplied to the fuel cell obtained by determining a voltage of the fuel cell after the variation of electrical load based on a synthetic output characteristics of the fuel cell and the capacitor, originated from a equilibrium point on a current-voltage characteristics of the fuel cell at a predetermined output state and a predetermined width of a variation of electrical load, obtains a current corresponding to said voltage, obtains a reacting gas supply amount corresponding to said current, and supplies the reacting gas in an amount which includes an excess supply amount with the equilibrium reacting gas supply amount before the variation of electrical load; and said output limiting device charges said electric double layer capacitor while limiting the output current from the fuel cell, and when the potential difference between said fuel cell and said electric double layer capacitor becomes lower than a predetermined potential difference, said fuel cell and said electric double layer capacitor is made to a directly connected state.

19. A fuel cell power supply unit according to claim 18, wherein the reacting gas amount supplied to the fuel cell in said output state is determined based on the current-voltage characteristics of said fuel cell, the current-voltage characteristics of the capacitor, and the equilibrium reacting gas supply amount characteristics corresponding to the current-voltage characteristics of the fuel cell.

20. A fuel cell power supply unit according to claim 18, wherein the current-voltage characteristics of said fuel cell depend on an internal resistance of the fuel cell or an average internal resistance of the fuel cell within a predetermined output current range.

21. A fuel cell power supply unit according to claim 18, wherein the current-voltage characteristics of said electric double layer capacitor depends on the internal resistance of said electric double layer capacitor.

22. A fuel cell power supply unit according to claim 18, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state

to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

23. A fuel cell power supply unit according to claim 19, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

24. A fuel cell power supply unit according to claim 20, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

25. A fuel cell power supply unit according to claim 21, wherein the reacting gas supply amount supplied from said reacting gas supply system to the fuel cell is determined such that the response time reaching from the reacting gas amount at said predetermined output state to the equilibrium reacting gas amount after the variation of electrical load is shorter than the output assistance operation period by said electric double layer capacitor.

26. A fuel cell power supply unit according to claim 22, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

27. A fuel cell power supply unit according to claim 23, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

28. A fuel cell power supply unit according to claim 24, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

29. A fuel cell power supply unit according to claim 25, wherein the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

30. A fuel cell power supply unit according to claim 22, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

31. A fuel cell power supply unit according to claim 23, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

32. A fuel cell power supply unit according to claim 24, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

33. A fuel cell power supply unit according to claim 25, wherein a capacitance of said electric double layer capacitor is determined such that the response time of said reacting gas supply system is set below the output assistance period by said output assistance operation period of said electric double layer capacitor.

34. A fuel cell power supply unit according to one of claims 18 to 33, in which the reacting gas supply amount to said fuel cell is obtained based on a target generation command value after calculating a target output command value for a driving motor and a target generation command value of said fuel cell based on the input signals indicating the driving state of a vehicle obtained at predetermined intervals, wherein the width of the variation of electrical load obtained from the difference between two successively obtained target generation command values is controlled so as to be within a predetermined range of the difference.